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PROGRAM OF OUTDOOR EDUCATION FOR SOUTHERN IDAHO, CURRICULUM GUIDE.

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EDUCATIONAL OBJECTIVES, CONCEPTS, EXPERIENCES, AND DATA TO BE COVERED ARE PRESENTED WITH SUGGESTED ACTIVITIES AND DAILY LESSON PLANS TO PROVIDE TEACHERS IN A SUMMER OUTDOOR EDUCATION PROGRAM WITH MATERIALS TO REINFORCE AND ENHANCE TRADITIONAL CLASSROOM LEARNING. WEEKLY UNIT PLANS IN SCIENCE, LANGUAGE ARTS, MATHEMATICS, AND SOCIAL STUDIES COVER THE CONCEPT TO BE DEVELOPED, PROBLEMS, PROBLEM-SOLVING ACTIVITIES, AND FOLLOW-UP ACTIVITIES. THE APPENDIX INCLUDES (1) ADDITIONAL ACTIVITIES, WITH OBJECTIVES AND EXPERIENCES, IN EACH OF THE FOREGOING SUBJECT AREAS AS WELL AS NATURAL SCIENCE, EARTH SCIENCE, AND FINE ARTS, (2) SUGGESTED TRAVEL ACTIVITIES RELATED TO THE VARIOUS SUBJECT AREAS, AND (3) TEXTBOOK REFERENCES, BIBLIOGRAPHY, AND AUDIOVISUAL AID SUGGESTIONS. (SW)

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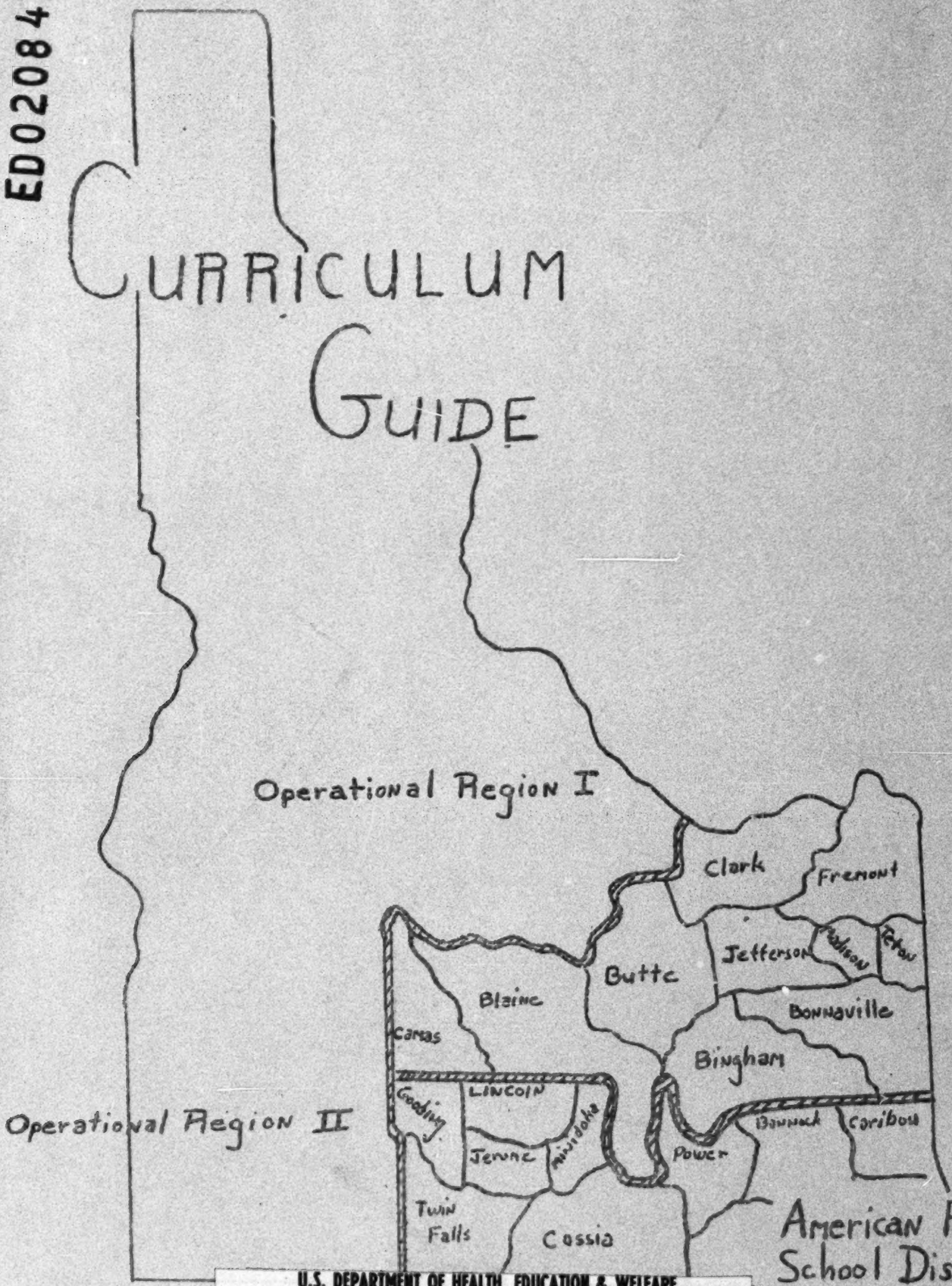

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American Falls, Ida.
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A Curriculum Guide for the Summer Program

Produced for teachers by the Program of Outdoor Education for Southern Idaho, School District 381, American Falls Idaho
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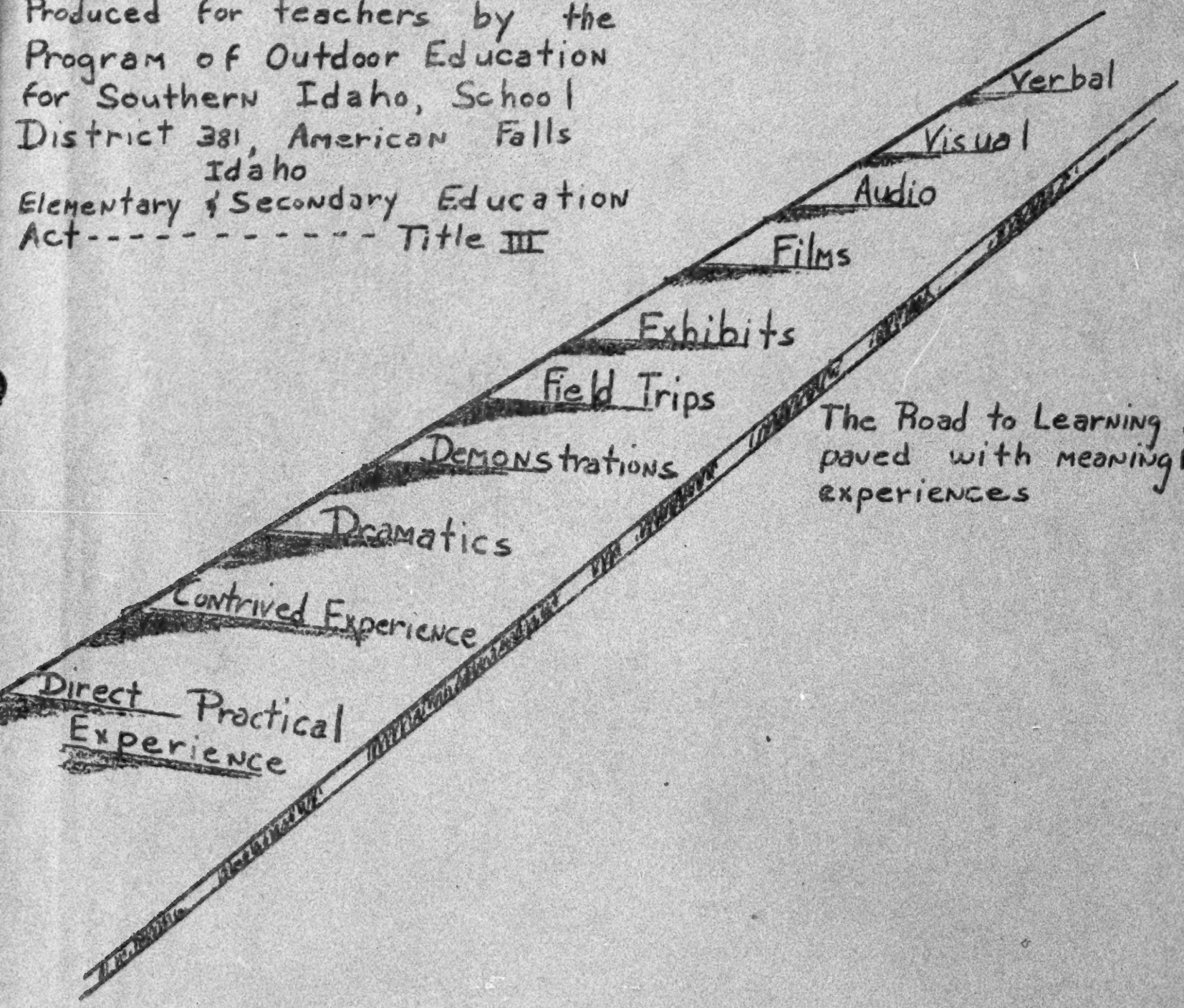

The Road to Learning is paved with meaningful experiences

. Thomas
Grant Administrator

Harry Shimada Jr.
Director

David W. Faith & Denis C. DuBois
Regional Supervisors

PREFACE

This booklet has been prepared for the use of teachers and administrators participating in the summer phase of the Program of Outdoor Education for Southern Idaho. The booklet is partially a result of experience gained during the 1967 summer operation and is intended to be used as a guide for the 1968-1969 summer programs. It presents the educational objectives for the program; concepts, experiences, and data to be covered; suggested activities and lesson plans for the attainment of the objectives.

Even though this material may appear quite structured, the project staff wishes to acknowledge the importance of the individual teacher's creativity. We hope that the format presented here will become a stimulus to the teacher's imaginative use of these suggested activities and will be supplemented by his own enthusiasm and innovation. At the end of this summer, we hope to share each teacher's experience with the program and will attempt to evaluate our total effort. As teachers, we should, perhaps, be simply the most experienced student, sharing in the learning process and responding to its joys.

We would like to express our appreciation for the materials provided by the Lorado Taft Field Campus of Northern Illinois University and included in this publication as additional activities and suggested readings. Our thanks is also extended to the State Department of Education, Boise, Idaho, for supplying us with the publications from which our teaching concepts were drawn.

David W. Faith
Denis C. Du Bois

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INTRODUCTION

In preparing the curriculum for the 1968-1969 Program of Outdoor Education, the project staff has attempted to design a summer program that demonstrates a teaching method conducive to positive learning experiences in which sound educational objectives are utilized to reinforce and enhance traditional classroom learning. Outdoor Education is a method that can be used throughout the year, though the present scope of operation dictates a limitation in the time of actual student involvement. Our program, in fact, services teachers and youngsters the year around, with the summer months set aside for direct contact with students.

We have made the assumption that most of the student's classroom activities have included experiences and test situations, which emphasize recall (either by recognition or from memory) of ideas, material or phenomena. Most often, the students responses are expected to be very similar to those of the original learning situation. This type of *cognitive learning is recognized to be a means of attaining the *knowledge level of understanding.

Emphasis on knowledge may be justified in many ways and is often the highest level of attainment reached during the school

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* See Taxonomy of Educational Objectives, Hand Book I: Cognitive Domain, Benjamin S. Bloom, Editor; David McKay Company, Inc., New York, 1965.

The project staff has depended heavily upon this work as a basic reference. We have therefore used termonology defined and clarified in this text and have noted the terms with an asterisk for the reader's further study.

year. The project staff has assumed that this level of learning has been reached by the majority of students. It is not our intent to repeat a task that has already been accomplished. We wish to broaden the scope of traditional classroom learning by employing multi-sensory experiences in the out-of-doors and emphasizing student-teacher cooperation and involvement with the curriculum.

Outdoor Education finds its justification in taking the student beyond the textbook into the world of observation and experience in order to help him *subsume his knowledge to higher levels of understanding, as listed below:

I. *Comprehension

1. *Translation
2. *Interpretation
3. *Extrapolation

II. *Application

III. *Analysis

IV. *Synthesis

In order to reach the desired goals, the project staff has designed a *conceptual frame work for teachers to utilize while engaged in the *Homebase and *Resident Outdoor Programs. We have selected concepts taught in the Idaho schools between grades one and six and have developed extended learning activities to reinforce those concepts using the *problem solving approach.

Since major emphasis is placed on the reinforcement of concepts, each day's format includes problems which have been posed in order to stimulate interest and provide an avenue for working with the concepts. The problem solving activities, included as guides for teachers, are designed to necessitate the use of *previously acquired

* See Taxonomy of Educational Objectives

knowledge and to involve the student in direct application of this knowledge. Thus, the specified concepts will be reinforced and the student will be gaining "real life experience in the utilization of this knowledge.

Follow-up experiences have been included for use where a more solid understanding of the concept for the day is desired.**

While the problem solving and follow-up activities are only our carefully considered suggestions for the teacher's use, the concepts selected for mastery are the goals for this summer's program. Therefore, we require the teacher to adhere to the stated conceptual framework and to work with those concepts presented. The creative teacher should, however, feel a freedom in deviating from the prescribed problems and activities. We recognize that the inspired teacher can often improve upon such materials and encourage him to do so.

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* See Taxonomy of Educational Objectives

** Additional aids are included in the Appendix. We call your immediate attention to "Suggested Bus and Travel Activities."

CONCEPTS TO BE COVERED

	SCIENCE	LANGUAGE ARTS	MATH	SOCIAL STUDIES	FOLLOW-UP
MON.	THE EARTH ON WHICH WE LIVE	PARTS OF SPEECH	APPLICATIONS OF ADDITION, SUBTRACTION DIVISION & MULTIPLICATION	GEORGRAPHY & HISTORY OF IDAHO	SCIENCE
TUES.	THE EARTH IN SPACE	SPEECH & DRAMATICS	MEASUREMENT & MEASURES	DEVELOPMENT OF IDAHO	LANGUAGE ARTS
WED.	MACHINES MATTER & ENERGEY	COMPOSITION (PROSE & POETRY)	GEOMETRIC FORMS	COMMUNITY STUDY LOCAL	MATH
THURS.	PHYSICAL ENVIRONMENT	GENERAL STAFF MEETING	DECIMAL & COMMON FRACTIONS	COMMUNITY STUDY LOCAL	SOCIAL STUDIES
FRIDAY	BIOLOGICAL ENVIRONMENT	GENERAL STAFF MEETING	CHARTS & GRAPHS	COMMUNITY STUDY LOCAL	POST TEST

DAILY CONSIDERATIONS

Parents should be involved in some class activities whenever feasible and kept continuously aware of the Outdoor Education Program.

Much of the work in the Outdoor Education Program is designed to evoke proper attitudes and appreciations, especially strong feelings about beauty in nature and the need for wise use of natural resources. Conservation should be emphasized through the Program when appropriate in hopes that students will gain a real understanding of the wealth available to them and the value of preserving it.

The teacher is the catalyst in this Program. His enthusiasm will be of primary importance in setting the atmosphere and in motivating students. The quality of our teachers will determine the results of this Program.

Use of resource people whenever available and advantageous will contribute greatly to the Program.

A segment of time has been set aside daily for pre-planning with the students. During this period the teacher should allow the youngsters to take responsibility for a portion of the organization and planning of the daily activities.

The normal reaction of children on a bus is to sing or talk. While individual conversations and recreational activities are normal,

we feel that time spent traveling can be used in a more constructive way. There are many bus activities that are both constructive and interesting to students. All of them must be planned in advance and lead by the teacher or assistant. (See Appendix II)

The Regional Project Staff is always available to teachers for assistance. Please feel free to call upon us.

PROGRAM OF OUTDOOR EDUCATION FOR SOUTHERN IDAHO

Suggested Daily Homebase Schedule for Region I & II

SUMMER 1968

I. Classes Commence: 8:00 A.M.

II. Student-Teacher Planning for the Day (See Daily Considerations on page.)

III. Student-Teacher Activities in the Out-of-doors

IV. Lunch: 12:00 - 12:30

V. Student-Teacher Activities in the Out-of-doors

VI. Daily Follow-up Activities

VII. Classes Dismiss: 3:00 P.M.

POSSIBLE TIME ORGANIZATION

I. Student-Teacher Planning: 1 1/2 hours
(Could include travel time)

II. Outdoor Activities: 3 1/2 hours

III. Follow-up Activities: 1 1/2 hours

IV. Luncheon 1/2 hour

NOTE

Times could be adjusted to suit the day's activities.

SUGGESTED UNIT PLANS

FOR

WEEK OF SCIENCE ACTIVITIES

MONDAY

Subject Area: Science

Concept: The earth on which we live

Problems:

1. Define rock.
2. Define soil
3. Give evidence that supports the hypothesis: Southeastern Idaho is a semi arid land.
4. Locate an example of soil erosion, identify its causes and propose several solutions.
5. Name natural things (within a short distance of the school) that could be disposed of without upsetting the balance of nature.

Comments: The purpose of these problem solving activities is to reinforce the conservation education that is already included in school curricula. Ideally, they should raise the kind of questions about man's manipulation of his natural environment that an informed citizenry should be asking. Outdoor education offers opportunity to make the importance of conservation strongly felt by each participating student.

The activities for this day might best be approached by dividing the group into working committees after a general student-teacher planning session. If so, each committee should be allowed to plan its own

method of attack with the teacher assisting only when needed.

PROBLEM SOLVING ACTIVITIES

Problem 1

Have the students collect a wide variety of materials that they believe to be rocks. Ask them to formulate a list of characteristics that are unique to each individual piece of material. They may, then, establish criteria for the identification of materials as rocks and prepare a brief report explaining the concept of a rock to an imaginary person from another planet, who has never seen or heard of a rock.

Problem 2

Ask the students to locate and gather materials that they think might be contained in soil. Following this activity have each student put together some soil using the materials gathered. After constructing these soils artificially, ask the students to try to locate some actual soil that is similar to that constructed. Let them compare the actual soil with the artificially constructed soil and note differences and similarities. Ask the class to prepare a report, which describes the basic make up of soils and the processes involved in soil building.

Problem 3

With the students, locate a natural or semi-natural area (vacant lot, field, etc.). Request that the children write a paragraph describing it and make a sketch. Using the paragraphs and sketches, refer back to the natural area and ask the students what type of climate is prevelant there. After deciding on the type of climate present, ask them to write a second paragraph stating the facts that

support their opinions regarding the climate of the selected area.

Problem 4

Somewhere within the vicinity of the school or in any area in which the class may be working, there will be an example of soil erosion. Have the students study the area to find possible reasons for the erosion and try to formulate a course of action to prevent further damage. Ask them to decide whether or not the area could be restored to its original condition.

A short report describing their findings and recommendations might be developed by the students.

It would be productive to have the students who worked on this problem attempt to construct a model of the area for the purpose of experimenting with the recommended solutions. Point out that a model is not the same as the natural area and, therefore, some difficulties may arise when attempting to demonstrate actual conditions or events.

Problem 5

Have the students survey a given area taking note of the aray of natural phenomenon, both living and non-living. Then have the students compose a brief report describing the resulting appearance and effects of removal of trees, soil, grasses, bushes, insects and small animals.

Have the students discuss and prepare a report describing what, if anything, might be removed from an area without disturbing the balance of nature.

Questions such as the following should be considered:

1. Could one tree be cut down without damaging consequences? Several trees? All the Trees?

2. Are man made changes ever justified? Always justified?

3. What would be the ramifications of the destruction of one type of natural phenomenon? Emphasize the dependence and interrelationships of the living and non-living world.

4. Does man often change nature without realizing the full scope of events that follow?

5. Why is knowledge of the complexities of the natural world necessary before extensive elimination of any living thing is undertaken?

FOLLOW-UP ACTIVITIES

Problem 1 Follow-up

Have students present their report to the entire class for discussion. Suggest and encourage further individual investigation by interested students.

Problem 2 Follow-up

Have the students present their group report to the class for discussion. Students may also be encouraged to start a soil identification project or perhaps a collection of photographs or drawings of the various kinds of vegetation that survive best on a particular type of soil

Problem 3 Follow-up

Have students present their findings to the class for discussion. Follow-up these reports with a class discussion on the relationships between weather, climate, and vegetation.

A committee of students might be encouraged to make an art display consisting of the sketches done previously in the field.

Problem 4 Follow-up

Have students present their reports to the class for discussion. Students who show an interest in the problems and significance of soil erosion might be encouraged to continue investigations into this aspect of conservation.

It might be suggested that they experiment with models using different kinds of soils under varying conditions.

Problem 5 Follow-up

Have students present their reports to the class for discussion. Attempt to guide the discussion toward consideration of the necessity for man to understand more fully his environment and to consider all consequences of his intervention with nature.

T U E S D A Y

Subject Area: Science

Concept: The Earth in Space

Problems: Morning

1. What is the biological relationship between the Sun and Earth?
2. What indirect effects does the Sun's energy have upon our planet?
3. How does water assist the sun in supporting life?

Evening

1. What is the Earth's relationship to the visible universe?

Comments: Tuesday is divided into morning and evening activities. Morning activities are devoted to considering the biological realtionship of the Earth to the Sun. Since evening makes it possible to observe other planets and stars, the activities center around viewing the universe. Viewing the sky brings wonderment and awe in most children. Try to capitalize on this. Only a few of the hundreds of possible questions about the night sky are suggested.

We would suggest that parents be encouraged to attend the evening session with, perhaps, a picnic or cookout planned. Early invitations to parents would help insure their participation.

PROBLEM SOLVING ACTIVITIES
(Morning)

Problem 1

Help the students find a plant that is exposed to the sun and compare it to one that is of the same variety and is only partially exposed to sunlight. Be sure that both plants are receiving approximately the same quantity of moisture.

With the students look into a culvert where the sun rarely shines. Have them compare what they see there with a more normal environment, which receives sunshine.

Problem 2

Survey the community with the students. Ask them to enumerate the various inhabitants that are dependant upon plant life for their existence.

Problem 3

Have the students compare an irrigated area to an arid one.

FOLLOW-UP ACTIVITIES
(Morning)

Problem 1 Follow-up

Conduct a discussion of the changes that would occur if the sun's energy would dissipate. Try to get students to suggest ways of computing the eventual loss of radiant energy.

Problem 2 & 3 Follow-up

Have interested students set up a weather station for use throughout the summer program. Utilize the station to study day to day variations in weather.

PROBLEM SOLVING ACTIVITIES
(Evening)

Problem 1

Through observation ask the youngsters to attempt to answer the following questions (possibly with the aid of a resource person).

1. About how many stars can one see with the naked eye?
2. Are all the points of light stars?
3. Are all the stars identical in brightness, and size?
4. What measurement is used to state the distance of a star from the earth? (light year).
5. Are the objects you see moving? Can you see this movement? Why not?
6. What other objects besides stars might be seen?
7. How big is space?
8. Why is the earth classified as a planet?
9. Could an intelligent being on another planet around a different star be viewing our present actions? (No concept of light year).
10. Are all the stars we can see in our own galaxy, or are some of them in another galaxy?
11. How many stars are there? (Estimated to be as many stars as grains of sand on all the beaches in all the world.)

FOLLOW-UP ACTIVITIES
(Evening)

Problem 1 Follow-up

With the assistance of a telescope or binoculars reinforce the night time activities. If possible, visit the nearest planetarium. Many excellent movies are available in this subject area which might supplement this activity.

It might be interesting to have the students take pictures of

several sections of the night sky and put them together in a display. (This requires long film exposure). Students interested in photography may wish to make "Star Tracks." Have them point the camera at the North Star and expose the film for a period of one or more hours.

W E D N E S D A Y

Subject Area: Science

Concept: Machines, Matter and Energy

Problems:

1. What simple machines can be found within one block of the school?
2. What are the differences between the kinds of matter?
3. What makes machines work? What is energy?

Comments: The teacher might find it worthwhile to review the definitions of matter and energy in a basic physics text (such as a high school text) as well as review the concept of mechanical advantage with respect to simple machines.

PROBLEM SOLVING ACTIVITIES

Problem 1

Conduct a brief review of the characteristics and types of simple machines. Organize the class into teams. Have each team go out into the community within one block of the school to list and identify the simple machines they observe. Award a prize to the team with the longest list of simple machines.

Re-divide the class into teams with each team looking for a type of simple machine. (Example: Team 1 = levers). Send the teams back outside to list all the simple machines their respective groups represent. When students reassemble in the classroom, ask whether one of the simple machines was more frequently encountered.

Problem 2

Send the students into the school yard to collect a specimen of each kind of matter. Have them prepare a demonstration showing that the collection is complete and that each item is a form of matter.

Problem 3

Have students go outside to observe various natural and mechanical objects, first still and then in motion. These observations can be used later to discuss energy as it appears in life forms and in machines. You might have them do the following:

1. Pick up a rock and hold it against their chests. Does it hurt? Would there be a difference if the rock were thrown by someone? Has the rock changed?

2. Observe a car with the motor turned off and compare it to one with a motor running. What is the difference?

3. Observe the sun's light around you. Does this light have the ability to do work?

4. Observe a resting bird and compare it to a bird in flight. What is the difference? Compare the bird's flight with that of an airplane. Is there a difference?

The above, of course, are only a few examples of differences in potential, kinetic, chemical and heat energy. There are many other examples of objects that possess the ability to do work. Emphasize this, and try to show, for example, that the rock alone does not do the damage when thrown, but rather the speed at which the rock is traveling. Emphasize that there are several kinds of energy and all are evidences of work being done. Since energy is a difficult concept to understand, use as many analogies and examples as you can find.

FOLLOW-UP ACTIVITIES

Problem 1 Follow-up

Have children make a close observation of an automobile, listing the simple machines used in its construction and operation. Have them also conclude which simple machine is most widely used and why?

Problem 2 Follow-up

Have several youngsters prepare a report on the relationships between matter and energy.

Problem 3

Have students burn a piece of wood and help them gain an understanding of the chemical change involved and the release of energy resulting from chemical recombination.

THURSDAY

Subject Area: Science

Concept: The Physical Environment

Problems:

1. List the colors in sunlight.
2. Find examples of the following in nature:
   a. Transparency
   b. Translucence
   c. Reflection
   d. Refraction
   e. e. Opaqueness
3. Find out which travels faster, light or sound.
4. Discover where sound carries best.
5. List the materials attracted to magnets and explain why.
6. Explain how electricity is brought to your home.

PROBLEM SOLVING ACTIVITIES

Problem 1

With the youngsters, set up or locate a sprinkler. Adjust your position relative to the sun until a rainbow becomes visible. Have the students try to find out why sunlight creates a rainbow when passing through drops of water? Use a prism to obtain a spectrum. Ask the students how this can be related to a rainbow? Point out the position of the sun relative to the water, prism and observer.

Problem 2

Go into the field with your group and collect several insects. Ask the children to look toward the sun(not at the sun) through the insect's wings. Ask them if light passes through and what this is called. If light does not pass through, ask the students what word

could be used to describe the condition. Ask why it is possible to see through some materials, partially see through others and not see through many.

Have your youngsters adjust their position relative to the windows of a building or to a pool of water until they can see an image (reflection). Ask them what is happening and why.

Find a puddle or pond. Direct a student to insert a yard stick into the water. Have the group decide whether the yard stick changes shape or not and why.

Problem 3

If possible, obtain a starters blank pistol. Have the students take a position 200 to 300 yards away from you and fire the pistol. Direct the students to measure the time that lapses between their observation of the flash and detection of the explosion (sound). Allow them to use a stop watch for this.

Ask the following questions:

1. How much time elapsed between the flash and explosion? Why?
2. What secondary influences might affect the results of this experiment?

If a pistol is not available, use a flashlight and a horn or megaphone.

Problem 4

Go into the out-of-doors with your youngsters. Divide them into two groups. Have one group position itself approximately 150 yards from the other with a flat area between. Utilize several instruments, (bugle, guitar, whistle) each of which emits a sound at a different pitch (ranging from high to low). Produce sound with each instrument, making an effort to maintain a standard volume and have the students in the distant group record their impressions of the sounds they hear

in terms of loudness and distinctness. Have the groups reverse their positions and repeat the experiment.

Carry out the above in several areas under varying conditions (hills, trees, rocks, bare earth, water, etc.) always trying to keep the distance between groups at 150 yards and the volume of the sounds constant. Ask the students to decide what conditions were the most condusive to hearing the sounds clearly and distinctly. Have the youngsters decide which instrument was most audible and why.*

Problem 5

Take a magnet out into the field. Have your students test a wide variety of materials with the magnet and list those that were attracted to it. If possible, allow the students to take a sample of each material for further testing. Return to the classroom and conduct research with the youngsters to ascertain why some materials are attracted to the magnet and others are not.

Problem 6

Take the class on a field trip to a power company substation or, if nearby and convenient, a hydroelectric dam. Arrange for a resource person to conduct a tour of the facility and react to the questions of the group. Ask the youngsters how this facility is related to the power that runs your electric stove, etc.

FOLLOW-UP ACTIVITIES

Comments

The follow-up activities suggested for Problem 1 through 5 could

* The teacher might wish to open a discussion on the problem of noise tolerance for residents of cities and the value of quiet.

be approached as student committee work in the morning and problem 6 could be a group activity for the afternoon.

Problem 1 Follow-up

Have the group conduct research into the uses of a spectroscope and construct a simple model utilizing prisms, etc. Ask them to find as many uses for their model spectroscope as possible and to demonstrate some of these.

Problem 2 Follow-up

Have each student make a collection of transparent and translucent materials.

Ask them to take a heavy sheet of paper and hold it up to the light to find out if it is transparent, translucent or opaque. Have them treat it with oil and conduct t e experiment once again to find out what effect the oil had on the paper.

With the youngsters, try to find and list materials that can cause refraction of light. Ask why the materials do this.

Dismantle a mirror and try to get the students to explain its high reflecting qualities.

Problem 3 Follow-up

Divide the group into pairs. Have one member of each pair make a loud noise. Have the other member of the pair attempt to run away at a speed sufficient to leave the sound behind. Ask who successfully out ran the sound and what would have to be done, if a person were to outdistance a sound? Ask why this is true.

Conduct the same experiment using a flash light beam instead of a sound. Ask the students to describe the results. Ask if a person could ever outdistance a flashlight beam and how. Tell the students to find out what travels faster than a light beam.

Problem 4 Follow-up

Have your group find out whether or not all sounds are audible. Inquire as to what, if any, sounds or kinds of sound are not and why.

Problem 5 Follow-up

With the class, conduct research on magnetism and have each student prepare a report explaining what happens to melecules within certain kinds of matter that causes that matter to become magnetic.

Problem 6 Follow-up

Encourage the class to write letters to the resource person involved in the Problem Solving Activity for Problem number 6. Suggest that they thank him for his assistance with the days experiences and that they mention the things that he helped them to learn.

Problem 4 Follow-up

Have your group find out whether or not all sounds are audible. Inquire as to what, if any, sounds or kinds of sound are not and why.

Problem 5 Follow-up

With the class, conduct research on magnetism and have each student prepare a report explaining what happens to molecules within certain kinds of matter that causes that matter to become magnetic.

Problem 6 Follow-up

Encourage the class to write letters to the resource person involved in the Problem Solving Activity for Problem number 6. Suggest that they thank him for his assistance with the days experiences and that they mention the things that he helped them to learn.

F R I D A Y

Subject Area: Science

Concept: The Biological Environment

Problem: Define the Biological Environment

PROBLEM SOLVING ACTIVITIES

Problem 1

Conduct a discussion where-in the students develop a definition of Biology. Expand the discussion to include Biology as part of their lives and environment.

Divide the class into two groups; one for plants and the other for animals. Take the groups out-of-doors to list as many varieties of plants and animals as can be observed in a given area.

Following the above, assign each student in the first group a plant from their list and do the same with the second group, assigning an animal from their list to each member.

Send the students back into the study area to observe and investigate their individual plants or animals.

After an appropriate period of time for observation, reassemble the class. Have the plant and animal groups organize as teams for charades. Allow each member of the plant team to act out a charade demonstrating his assigned plant and alternate these presentations with those from the animal team. Keep score and award a prize to the winning team.

FOLLOW-UP ACTIVITIES

Problem 1 Follow-up

Have each student prepare a descriptive paragraph about his plant

or animal. Be sure that the students utilize resource and library materials for this activity.

Compile the paragraphs into a booklet and ditto them off so that each student can have a copy. Have students prepare illustrations to go with each paragraph. It might be a good idea to send copies of this booklet to each parent and to the local newspaper.

SUGGESTED UNIT PLAN

FOR

WEEK OF LANGUAGE ARTS ACTIVITIES

MONDAY

Subject Area: Language Arts

Concept: Parts of Speech

Problems:

1. What is a noun?
2. What is an adjective?
3. What is a verb?
4. What is an adverb?
5. How do we use parts of speech?

Comments: Although this week is dedicated to Language Arts, teachers are encouraged to tie in these activities with other subject areas. The scientific method might well be stressed in connection with language skills - observation, gathering and recording data; arriving at a general statement; applying general statement to a specific situation. The importance of classifying information, defining terms, and arriving at reliable generalizations can all be stressed.

A student diary is suggested as another kind of activity that might be carried out over the entire summer. Since a diary is usually a personal and subjective record, it would provide a good opportunity for students to learn how to communicate feelings and enthusiasms about their summer experiences in the out-of-doors.

PROBLEM SOLVING ACTIVITIES

Problems 1 and 2

Go into the out-of-doors with the children and measure off a small area of interest. Have them try to describe the area without using nouns or adjectives. Then lead the students to imagine how early man began to name and describe things in nature. Ask how infants learn names for things.

Problem 3

Have students describe movements and/or activities within the range of their senses. Then have them arrange a list of words that can be used as a verb, or part of a verb, ie. gerands, participles, infinitives.

Problem 4

Conduct a discussion of verbs and their modifiers. Refer to the list already developed, and ask the students to identify an adverb for each.

Problem 5

Divide the class into groups. Blindfold each child, and give each group an object taken from the out-of-doors. Have them describe in turn the object's odor, surface, size and suspected color. Then have them guess what it is.

FOLLOW-UP ACTIVITIES

Problem 1 and 2 Follow-up

Have students observe and describe familiar shapes, designs, or figures in objects such as clouds, shadows, rock formations, or trees.

Problem 3 and 4 Follow-up

Using the senses, compare how differently one perceives his environment by having each student write his impressions and share what he has written.

Problem 5 Follow-up

Encourage students to listen for new words in the speech of other people. Have students examine the meaning of various words related to the out-of-doors.

TUESDAY

Subject Area: Language Arts

Concepts: Speech and Dramatics

Problems:

1. How do we express ourselves and communicate our thoughts to others without utilizing the written word?

2. What is the value of oral communication?

Comments: This day's activities may be concluded with a social hour for parents planned by the students. The event might include a play presentation and/or selected speeches on the natural phenomena observed by the students. The play and speeches could reinforce two important Outdoor Education aims: 1) a sense of the beauty and the usefulness of nature and 2) ability to communicate this appreciation of nature with others.

PROBLEM SOLVING ACTIVITIES

Problem 1

Take a field trip to a nearby location that is especially beautiful and inspiring. Have students observe the area, listen for both familiar and unfamiliar sounds, try to detect various odors and finally, contemplate the perceptions received. Take sufficient time to do this. Reassemble the students and conduct a discussion on what the senses "tell" us. During the discussion make an attempt to bring out some of the historical background of the area emphasizing the pioneers, their outdoor way of life, and their spirit of discovery and adventure.

When students are sufficiently involved with this train of thought, ask them if there are any ways of actually demonstrating the feelings and experiences of the pioneers who settled in the area. Ask if they would like to act these out.

Divide the class into two groups. Ask each group to plan a short play depicting the pioneer's feelings and problems because of close contact with a wilderness environment. Emphasize that most of man's history has been lived in close contact with and in competition with his natural surroundings.

Return to the classroom and have the students present their plays. Have the youngsters evaluate the plays and discuss the following questions:

1. Did the players do an effective job of communicating the pioneers' problems and feelings?

2. Can one always communicate inner feelings to another person or groups?

3. Would a better command of the English language make the production of dramatizations more meaningful?

Problem 2

Have the students choose one experience which made their field trip especially enjoyable and meaningful and one that detracted from the experience.

Have them prepare a brief oral (could be extemporaneous) presentation describing these experiences.

After the oral reports, have been given conduct a discussion concerning the following questions:

1. How could the oral reports have been improved?

2. Could many students have done a better job if the report had been written? Does this have to do with time to develop a choice of words.

3. How can one improve his ability to communicate orally. Would a good command of descriptive words help in oral communication?

FOLLOW-UP ACTIVITIES

Problems 1 and 2

Have students present plays or give speeches for an audience of parents.

The evening might be ended by a social hour with refreshments served by the students.

WEDNESDAY

Subject Area: Language Arts

Concept: Composition (Prose & Poetry)

Problems:

1. How can creative expression be stimulated by outdoor experiences?

2. In what ways are the ability of expression increased through spoken and written words?

Comments: This day provides teachers and students a wonderful opportunity to select and read poems on nature in pleasant surroundings. Sometimes the use of a drum to beat out rhythm is enjoyable and, if the teacher explains that poetry is the most primitive of library forms, students are likely to feel how basic this mode of expression is.

It would be best to give students alternatives such as preparing a poem, writing a story, or giving a speech at some time. Nonsense verses are also a great deal of fun, and students enjoy making them up during travel or at other times.

PROBLEM SOLVING ACTIVITIES

Problem 1

Have students read and compare the works of Keats, Wadsworth, Sandburg, or Frost to the writings of Emerson, Thoreau, Burroughs, or Audubon. Invite their reactions to the same things written about in nature. Then have students take a walk. On return, have students describe their impression of natural objects which impressed them most.

Problem 2

Take students out-of-doors for a "Serendipity Stroll." Have them listen for a short time and list all the different kinds of sounds heard. Then, have them search for words that best imitate the sounds of nature

(examples - gurgle, bubble, bark, boom, swish, hiss, croak, chirp).
Encourage the use of words in recording the sights and sounds of the day.

FOLLOW-UP ACTIVITIES

Problem 1 Follow-up

Have students express their reactions to the immediate environment through the medium of Haiku poetry, or play popular recordings such as "Ode to Billy Jo" and study these ballads in the context of poetry.

Problem 2 Follow-up

Develop a class card dictionary of new vocabulary learned in connection with outdoor experiences.

THURSDAY AND FRIDAY

General Staff Meeting - All District Personnel

SUGGESTED UNIT PLAN

FOR

WEEK OF MATHEMATICS ACTIVITIES

M O N D A Y

Subject Area: Mathematics

Concepts: Addition, Subtraction, Multiplication and Division

Problems:

1. How can we apply addition to everyday life?
2. Why do we need to be able to subtract?
3. Where does multiplication fit into daily activities?
4. What is the relationship of division to the daily routine?
5. How are these methods related?

Comments: These follow-up activities may seem quite extensive, but they demonstrate a real life situation. Involvement of parents with the activities is encouraged, and we hope that the teacher will be able to stimulate enough interest in the students to cause them to pursue it actively.

PROBLEM SOLVING ACTIVITIES

Problem 1

Have the students count the number of plants in a cultivated field of a given size. List their totals (suggestion: each student could be repsonsible for a samll area and the totals could be added).

Problems 1, 2 & 3

Estimating a 13% loss resulting from disease, erosion and other factors, direct the class to calculate the number of plants, that will remain in each student's small area of responsibility. Have the class add the new totals for these small areas to find out the number of surviving plants for the entire field.

Problems 1 & 3

With the students measure the size of the field and ask them to

solve the following problem. If the farmer's propetty is 137 times the size of this field, how much land does he own?

Problems 3 & 4

Ask the students to solve these problems. If 3/4ths of this farmer's land is productive and he realizes a net average profit of $97.00 per acre, how much net profit would he realize on his entire holdings?

If this farmer has living expenses of $500.00 per month, for how many months will the profit on his crop support him? Have the students make an estimate of how long their families could subsist on this farmer's profit.

Problem 5

Conduct a discussion of the foregoing activities. Point out to the students the number of times it was necessary to use more than one mathematical process in solving a problem. Also note that it is possible to approach a problem from several points of view, and that different methods can be utilized each time. Demonstrate the advantage of multiplication over addition in certain cases.

FOLLOW-UP ACTIVITIES

Problem 1, 2, 3 & 4 Follow-up

Have the students conduct a discussion with their parents to find out how many ways they use addition, subtraction, multiplication and division during their daily routine. Ask them to list these and share them with the class.

Problems 2, 3, 4 & 5 Follow-up

Pose the following theoretical problem to the class. If your father's wages were decreased by $100.00 per month during a recession, it would be necessary to cut spending. If his normal wages were $475.00

per month, where would you make the necessary cuts in expenditures. Show your calculations. Note: in order to complete this problem the student should meet with his parents and set up a normal budget based on a $475.00 per month salary. Students should consider cost of food, rent, mortgages, taxes, insurance costs, etc.

If the student decides that such an income reduction would warrant drastic measures (sale of home, car, etc.) he should outline these measures.

TUESDAY

Subject Area: Mathematics

Concepts: Measurements and Measures

Problems:

1. What kinds of measurement are most commonly employed to solve everyday problems at home and at work?
2. How many kinds of linear measures exist?
3. How many kinds of square measures exist?
4. How many kinds of cubic measures exist?
5. Where are the above used?

Comments: It has been mentioned that numerous day to day problem solving activities require the use of mathematics. It would be worthwhile to also discuss the use of mathematics in forestry, game management, soil conservation, water pollution control and many other areas of conservation.

PROBLEM SOLVING ACTIVITIES

Problem 1

Have students go into the area surrounding the school to select several items for measurements - i.e., a field, flag pole, building, tree. Be sure that the students have an item for each of the following measurements:

1. Perimeter
2. Circumference
3. Diameter
4. Area
5. Volume

6. Distance

7. Length

8. Altitude

9. Speed

The students should be instructed to consider each item and decide what unit of measure is best suited for solving the problem and how they will go about measuring it. (For example, would inches, feet yards, rods or miles be best for measuring the distance across the field?)

After the students have completed their measurements have them list three reasons why each measurement might be of practical value.

Problem 2

Select two points that are some distance apart. Organize the class into a number of small groups with each group representing a unit of linear measurement. Then have the groups measure the distance selected and compare the results. Let the class decide which unit of measurement was most practical.

Ask the groups that represented the less practical units of measurement to decide for what purpose their units would be best suited.

Problem 3

Conduct an exercise similar to problem #2 substituting square measurement for linear.

Problem 4

Conduct a class discussion on cubic measurement. Decide where cubic measurement is useful. (Volume) Locate a lake, gravel pit, well, cistern, barn or some natural area in which volume would be a consideration. It is assumed that a location within walking distance would be

selected.

Have the students decide which unit of cubic measure would be appropriate for this activity and let them pursue the task of measurement.

Problem 5

Return to the classroom and discuss the day's activities taking special note of the practical, day to day use of mathematics. Have students imagine what differences would exist in our way of life if no one had knowledge of mathematics.

FOLLOW-UP ACTIVITIES

Problems 1,2,3,4 & 5 Follow-up

Since there is almost an unlimited list of practical uses for mathematics it should not be difficult to find a problem that can be worked out at home. The following would be one example.

Assume that a quick thaw and water runoff carried away apportion of your back yard and that you wish to raise the level of the yard to prevent a reoccurance of the same thing.

Let's say that you decide to raise the entire back yard 3 inches above its present level. How would yo go about deciding the amount of fill to order? What would the fill cost?

(Instead of having 20 students call the local building materials contractor, it might be better to have one student volunteer to find the unit costs of the type of fill available and give this information to everyone.)

W E D N E S D A Y

Subject Area: Mathematics

Concept: Geometric Form

Problems:

1. What geometric forms are found in nature?
2. How has man encorporated geometric forms into his construction? Why has man decided to use geometric forms in construction?

Comments: The triangle will reappear frequently in the construction of supports and bracing because of the resistance to stress which the configuration provides.

Since man is deeply involved with the use of geometric forms in modern technology, it might be helpful to ask the assistance of a math teacher or other qualified resource person when conducting this day's activities.

PROBLEM SOLVING ACTIVITIES

Problem 1

Take a field trip with students to an area suitable for observing a variety of natural structures and phenomena; preferably an area where man has not disturbed the natural conditions to any great extent.

Have the students conduct a search for familiar geometric forms represented in natural structures. Have them list and draw the number of different geometric configurations seen and the frequency of each configuration.

Initiate a discussion involving the following questions:

1. Why do the geometric forms that have been recognized occur in nature?
2. Do the geometric forms serve any particular purpose or have an outstanding function?

Problem 2

Have students take the list of geometric configurations found in nature in the previous problem solving activity and compare the forms to man made structures. Have them decide how and why man has imitated nature in the use of geometric forms for construction.

FOLLOW-UP ACTIVITIES

Problem 1 Follow-up

An interesting hobby is the collection of spider webs. Since each species of spider spins a web with unique geometric configurations, this would be an excellent suggestion to make to interested students. It would not only reinforce geometric concepts, but could lead to an enjoyable and interesting pastime. The method is as follows:

1. Supplies include construction paper (8x10) and a can of spray paint of a contrasting color to the construction paper.
2. Locate a spider web and spray it with the paint.
3. Bring the construction paper up behind the web and carefully push against the web.

   The wet paint will cause the web to stick and dry on the paper.

Problem 2 Follow-up

Have the students inspect a bridge if one is available within reasonable distance. Example of questions they should consider are:

1. What geometric form reoccurs most frequently? Why?
2. Does this particular form exist in other types of construction?
3. What purpose is served by utilizing this design?

THURSDAY

Subject Area: Mathematics

Concepts: Common and Decimal Fractions

Problems:

1. What is a fraction ?
2. How do fractions (common and decimal) enter into everyday activities?
3. When is it more convenient to use decimal fractions in preferance to common fractions?

Comments: The day has two main purposes. One, of course, is to reinforce and enrich the concepts of fractions and decimals; the other is to give both students and teacher a relaxing day in what up to this time has been an intensive program. While the Program of Outdoor Education does not emphasize recreation, we can not afford to over look the fact that it is summer time, and that some recreational activities, when well planned, are a moral builder for all concerned.

PROBLEM SOLVING ACTIVITIES

Problem 1

Discuss common and decimal fractions briefly with the students.

Problems 2 & 3

Plan a picnic. Divide the class into groups identifying each group as a fraction of the whole. Make each group responsible for a part (fraction) of the preparations. Then have the groups further

subdivide into areas of specific responsibilities, identifying what fraction of the whole is represented by each subdivision.

Have the students commence planning the picnic while the teacher circulates from one area to another, pointing out the use of fractions in the various assignments of responsibility.

After an appropriate lapse of time, bring the groups together and go over the picnic plans, noting the use of fractions. The students should then put their plans into effect; purchasing, making sandwiches, gathering materials, etc.

FOLLOW-UP ACTIVITIES

Problems 1 & 2 Follow-up

Have the students estimate the period of time spent swimming compared to sitting or standing around the pool. Once again, there are numerous examples of fractions in ordinary daily activities which the teacher can point out to the students.

Problems 2 & 3 Follow-up

Have students think back on the day's activities and try to pinpoint areas where decimals might have been used instead of fractions.

F R I D A Y

Subject Area: Mathematics

Concepts: Charts and Graphs

Problems;

1. How many kinds of charts and graphs are there?
2. What is the difference between a chart and a graph?
3. When is a graph more useful than a chart? When is a map more useful than either?
4. When are charts, graphs and maps valuable?
5. How do you use maps?

Comments: The area of charts, graphs and maps is often a weak point in the teaching of mathematics. In today's society, however, charts and graphs are constantly used to report statistics of all kinds. This will probably be even more prevalent in the future. It is important that all citizens be able to read accurately the statistics that are presented in the mass media.

PROBLEM SOLVING ACTIVITIES

Problems 1 & 5

Assign the students the task of searching through old magazines for examples of charts, graphs, and maps. (These could be brought from home or provided by the teacher.)

Problems 2 & 5

Hold a discussion and ascertain the differences between charts, graphs and maps and where each might best be applied.

Problems 3 & 5

Go out into the school yard or other suitable area and divide into groups of three. Have one member of each group make a chart showing the kinds of vegetation prevalent in the area. Have the second member of each group plot a graph (attempt to obtain a wide variety of kinds of graphs) showing the change in temperature Over a given period of time in an area exposed to the sun and another area which is shaded for comparison purposes. While these activities are going on, have the third group member map the field trip location.

Problems 4 & 5

Have each group prepare a presentation describing the field trip utilizing their charts, graphs and maps. Possibly the information on the charts might be placed on the maps in an appropriate manner.

FOLLOW-UP ACTIVITIES

Problems 1, 2, 3, 4 & 5 Follow-up

Have the students make their presentations.

SUGGESTED UNIT PLANS

FOR

WEEK OF SOCIAL STUDIES AND HISTORY ACTIVITIES

MONDAY

Subject Area: Social Studies and History

Concept: Georgraphy and History of Idaho

Problems:

1. What are the geographical characteristics of Idaho? Of the local area?
2. What is the historical development of Idaho?

Comments: This day's activity might call for the use of a local resource person.

PROBLEM SOLVING ACTIVITIES

Problem 1

Take the class to the country side and have the students observe the land forms, weather, vegetation and animal life. Have them make a list of the things that they observe and, after locating a suitable resting place, write a brief description of the local geography. Upon returning to the classroom, divide the class into groups. Assign each group an area of the state to research. Using reference materials, each group should prepare a report for presentation to the class. After each presentation, the class could discuss geographical differences within the state.

Problem 2

Have students research the historical development of the area assigned to them in the activity of Problem 1 and allow them to make oral reports on their findings.

The discussions of the geographical features and historical development of Idaho might be concluded with a tour of appropriate historical sites and markers. (See Idaho Guide to Historical Sites and Markers.) If time allows, a stop at an area noted for the discovery of Indian artifacts could lead to discussion of the Indians of Idaho and their place in Idaho History.

FOLLOW-UP ACTIVITIES

Problem 1 Follow-up

Divide the class into groups. Have one group make a simple topographical map; another a climatic map; and another a historical map of Idaho. (The teacher should assist in providing resource material.)

Problem 2 Follow-up

On Pioneer Day (if appropriate to the local calendar) the students could dress in authentic historical costumes and conduct skits about Idaho History. Possibly this could be incorporated into the local formal celebration and contribute to everyone's enjoyment of the holiday.

TUESDAY

Subject Area: Social Studies and History

Concept: Idaho's Economic Development

Problems:

1. What is the role of agriculture in Idaho's economy?
2. What part is industry playing in Idaho's economic development?
3. What is the influence of tourists on Idaho's economy?
4. How does government contribute to economic development of a state?

Comments: This day's activities will require the use of resource people. If possible the students should take part in the advance planning. Possibly parents could be involved in some way and some local newspaper coverage encouraged.

PROBLEM SOLVING ACTIVITIES

Problem 1

Take the class on a field trip and stop briefly at (1) an irrigated farm and (2) at a dry farm. Have students answer such questions as: Which type of farming seems most lucrative; which, most prevalent? What is the farmers' expected net income? What is the cost of machinery, labor, fertilizer, etc.? Does government contribute to farming? What are the biggest crops produced in the area? Is there an industry to process the produce, such as a sugar factory?

Problem 2

Visit local or nearby industries, such as mining or lumbering industries. Ask whether the industry is locally owned or not? How many employees are working for the company? Where

are the products marketed? Can the industry grow? How does the industry contribute to the state government and how does it effect the local community? Does the company receive federal assistance?

Problem 3

Finish the day by visiting a local tourist attraction (if one is available).

Have the children count the out-of-state licenses observed on the entire trip. Ask if tourists are contributing to the economy of Idaho?

Problem 4

Spend a short time either driving or walking around the local community. Have students compare the new construction and housing to the quantity of old buildings. Decide if the community is growing and developing or if it has become stagnant. Ask if building will increase or decrease in the future and why? When rural areas were observed, did they appear to be getting more populated?

FOLLOW-UP ACTIVITIES

Problem 1, 2, 3, 4

Discuss the day's activities with the students and try to visualize Idaho's economic development and predict its future growth.

Have each student discuss his ideas about Idaho's development with his parents and write up a brief summary of their views about Idaho's future.

With the class, ask your local superintendent of schools to explain the basic sources of school finances and services to the students. How is the school important to the economy?

WEDNESDAY

Subject Area: Social Studies and History

Concept: The Local Community

Comments: This day is left open so that the teacher may be flexible with the program. It is suggested that a visit to some outstanding local resource might fit in here and that parents might be involved as resource people along with other members of the community.

THURSDAY

Subject Area: Social Studies and History

Concept: The Local Community

Problems:

1. What kind of community do you live in?
2. What goods and services are offered to the public in your community?
3. How does your community support itself?
4. What religions and nationalities are represented in your community?
5. How does your community govern itself?

PROBLEM SOLVING ACTIVITIES

Problems 1, 2, 3, 4

Go out into the community with your class. Ask: What attempts have been made in the local area to conserve beauty and natural resources? What are signs of exploitation? What do beauty and natural resources have to do with economic prosperity? What does a Chamber of Commerce do? What do local ordinances, bond elections, traffic routing and zoning have to do with the economic future of a community?

Take a census of the local real estate. List the estimated percentage of upper class, middle class and lower class homes. Take note of the number and kind (approximate) of apartment and multi-family dwellings observed. Notice new construction and the age and make-up of the various neighborhoods. List the number and denomination of churches encountered. Visit the various parks, swimming pools, libraries and other public services and recreational facilities. List the historical sites, museums, theaters and cultural centers available.

Ascertain what types of businesses are represented in the city center and various shopping centers. Visit the court house and discuss the services available at the local level. Take note of area industry and agricultural services. Ask the students if your community has a slum area. Ask if the town encourages tourism. Have your group find out what railroads and highways are nearby and what effect they have upon the community. Call the attention of the youngsters to the various natural phenomena near your town. Ask if it is near a lake, river, mountainside or some other special geographical area. Have the students look for airports and navigable waterways within the community. Ask them to identify any special influences within the community and their purpose (cultural groups, nationalities, religious sects, ethnic groups). Have the youngsters look at street names and find out whether or not they denote anything special. Have the class investigate local postal services. Ask the group to list the banks in town. With the class, find out what other characteristics can be seen that help identify the community (hospitals, doctors offices, stock yards, etc.).

Note: It will probably be necessary to complete this study on the following day.

FRIDAY

Subject Area: Social Studies and History

Concept: The Local Community

CONTINUATION OF THURSDAY ACTIVITIES

Problem 5

Identify the levels of city and county government and the people who hold the various offices with your class. Subdivide your class according to the number of public officials identified so that one or two students can arrange a visit with each city and county official. Have each student or pair of students investigate the duties of the public officer assigned to them, and prepare a report for the class. Discuss the relationships between governmental agencies.

Depending on needs and interests, have students consider a tour of city and county facilities, utilizing one of the city or county officers as a guide, preferably the mayor.

FOLLOW-UP ACTIVITIES

Problem 1 Follow-up

Discuss developing a brochure which best describes your community, its history, development, and character. Validate your information at the courthouse, city hall or through a resource person. After completing this activity, present your brochure to the local chamber of commerce and newspaper for publication and distribution.

Problem 2 Follow-up

Visit a local merchant with your class. Attempt to gain an insight into the relationships between local businesses and the entire community. Ask students to determine what effects

local farm products have on the economy, including the consumer's need for patronizing local merchants.

Problem 3 Follow-up

Invite the tax assessor or other knowledgeable official to take the students on a field trip and point out projects supported by local taxes and public funds. Then return to the classroom for a round table discussion of the local tax structure.

Problem 4 Follow-up

Have students discuss the class reports on local government with their parents, and in class compare the different points of view.

Problem 5 Follow-up

Visit the local cemetery with the students and observe names and markers to ascertain area history. Look for religions, nationalities, years of strife (wars, depression and epidemics), etc.

SUMMARY

This booklet is designed to provide the personnel involved in the 1968 Outdoor Education Program with a sound realistic approach to the reinforcement, enhancement and enrichment of the learning process.

While we have attempted to provide detailed plans for the execution of daily activities, we wish to encourage flexibility, resourcefulness, and the utilization of student ideas that might be brought out during the prescribed pre planning sessions.

Objectives have been stated, problems posed and suggestions made that should be helpful to the teacher in carrying out the summer Outdoor Education Program. The teacher's desire and ability to stimulate and guide youngsters toward rewarding and productive learning situations will determine how dynamic this approach is in amplifying and enriching the basic curriculum. Enthusiasm, creativity and hardwork are the special ingredients, which, along with sound planning, make teaching an art; an art that a fortunate few are able to practice affectively.

APPENDIX I

List of Additional Activities

Mathematics

General Objectives

A. To use standard measuring instruments (compass, ruler, tape, gallon, etc.)

B. To understand relationship of arithmetic to everyday living

C. To develop capacity to estimate (distance, time, quantity, space, etc.)

D. Application of arithmetic skill to first-hand experiences in the outdoors

Direct Experiences

1. Cutting and piling a cord of wood

2. Measuring:
   a. A board foot, age of tree through ring count
   b. Circumference and diameter of trees
   c. Surface area for map making, scale drawings or models
   d. Dimensions of grain elevator
   e. Percent of slope
   f. Distances
   g. Pacing distance in hiking
   h. Measuring flow from a natural spring
   i. Developing a formula for measuring board feet in trees
   j. Measure the degree of incline on the school lawn (if any) and find out how much soil should be added or removed to make the lawn level

3. Estimating:
   a. Height of tree, hill or butte
   b. Time of day
   c. Distance hiked
   d. Distance from a ridge, peak, etc.
   e. Width of river

4. Averaging:
   a. Temperature readings
   b. Barometric readings

5. Compass Hiking

6. Planning amounts and costs of food for cook outs

7. Figuring finances for the experience

8. Construction of stiles, shelters, check dams, bridges, feeding stations

9. Operating a bank and store

10. Develop formulas:
    a. Develop a formula for measuring stopping distance of a given vehicle at a given speed and check your formula
    b. Develop a formula for calculating the number of posts and amount of fencing necessary to surround and given area with a 3 strand wire fence with posts 12 ft. apart.

Calculate the cost at current prices of 3 types of fencing for this task.

11. Calculate wear and tear on a local highway in relation to traffic pressure. Develop a formula

12. Find the quantity of fill necessary to raise the level of the school yard 1 ft. 6 in. in cubic yards

13. Find the amount of patching cement necessary to fill a crack in a foundation near your school

14. Calculate the amount of pavement necessary to cover the school parking lot to a depth of 3 inches. What would this cost at current prices.

Language Arts

General Objectives

A. To write legibly and spell correctly

B. To express oneself well in both written and spoken word

C. To read and interpret correctly

Direct Experiences

1. Writing letters

2. Planning the weekly program

3. Keeping field notes

4. Using the library for research reading

5. Labeling and identifying specimens

6. Dramatizations

7. Verbal discussions

8. Playing and leading games

9. Writing of poems, diaries, logs, newspapers, stories, songs, menus

10. Story telling

11. Writing Poetry

Social Studies

General Objectives

A. To create an interest in and understanding of local history

B. To develop an understanding of democratic procedures and of group process

C. To create an understanding of the relationship between man and his environment

D. To develop an understanding of some of the socio-emotional needs of man

E. To develop an understanding of how a local government functions

Direct Experiences

1. Looking for Indian relics
2. Construction of pioneer buildings, household articles
3. Making a community study of some small community nearby
4. Visiting local spots of historical interest
5. Making craft items out of natural materials
6. Map and model making
7. Making of traps, snares, slings, boomerangs, etc.
8. Cook outs
9. Visiting an abandoned farm
10. Cooperation in camp activities
11. Dramatizing conversations among Indians, pioneers

Natural Science

General Objectives

A. To be able to recognize some of the common plants and animals in the local area

B. To understand some of the interrelationships of plant and animal life in different environments of the local area

C. To know various methods of seed dissemination

D. To know the uses of different plants and animals

E. To understand the need for conservation of plant and animal life

Direct Experiences

1. Making clue charts for identification of trees, flowers, birds
2. Collecting and pressing leaves, and other plentiful plant specimens
3. Collecting and mounting seeds, insects
4. Felling a tree
5. Leaf study by means of blue prints, potato prints, spatter prints, crayon, clay
6. Studying animal tracks, making clay molds
7. Sketching
8. Using microscope and hand lens for closer scruting of parts
9. Nature scavenger or treasure hunts
10. Building shelters and feeding stations
11. Observing animals and keeping field notes on habits
12. Collecting bird nests and studying their construction

13. Finding animal homes

14. Taking nature hikes

15. Building a terrarium or aquarium

16. Learning to recognize bird and animal sounds

17. Using plant, tree, and animal products to make: cooking utensils, cordage, whistles, fishing plugs, tea, jewelry

18. Listening to night sounds

Earth Science

General Objectives

A. To understand some general characteristics of rock strata in the local area as they relate to plants, animals and water

B. To understand the history of rocks and their contribution to soil formation

C. To understand the relationship of surface terrain to underlying rock strata

D. To understand the causes, effects and ways to control erosion

E. To be able to recognize some major constellations and their relationship to earth motions

F. To understand the nature and movements of heavenly bodies as a pattern of related behavior

G. To understand forces in weather events

Direct Experiences

1. Visiting a quarry or gravel pit

2. Breaking up a rock and studying its properties under microscope

3. Keeping field notes of observations on a locale before and after rain

4. Conducting soil experiments

5. Studying a slope at different elevations

6. Using a handlevel to measure differing elevations

7. Visiting a conservation farm to observe good conservation practices

8. Night study of major constellations

9. Looking at moon through binoculars or telescope

10. Recording phases of moon

11. Looking for meteorties

12. Estimating time by shadow of sun or by star position

13. Making star trails with camera
14. Observing and sketching clouds
15. Building weather instruments
16. Making weather observations and predictions
17. Conducting air and water experiments
18. Visiting game and forest preserves
19. Visiting a fish hatchery

Fine Arts

General Objectives

A. To give the child an opportunity to explore a variety of media (with emphasis on natural materials)

B. To encourage the child to express his imaginative ideas as well as his realistic ones

C. To develop interests, information and skills in art and music which will lead to profitable use of leisure time

D. To consider art and music as a part of every day living

E. To develop handiness with common tools

F. To show relationship of art and music to culture of different people

G. To get everyone in group to sing for the fun of it

H. To develop a feeling for and understanding of rhythm

Direct Experiences

1. Making game equipment
2. Making simple furniture
3. Drawing a map of school area, compass maps of hikes
4. Making picture frames
5. Sketching, drawing, coloring, painting: gullies, streams, landscapes, etc.
6. Observing, counting color tones in distance
7. Clay work (modeling, making molds)
8. Wood carving, chipping, whittling
9. Collecting weeds, seeds, grasses, feathers, etc. (to make arrangements)
10. Making drums, rattles, tom-toms, headdresses for Indian ceremonial
11. Weaving grasses, barks, reeds, etc.
12. Taking photographs

13. Tree fungus carving

14. Singing songs and rounds

15. Marching, dancing, skipping, clapping, leaping to music recordings, drum beatings, songs, etc.

16. Composing songs

17. Listening to night sounds and comparing with recordings of such

18. Imitating bird calls

19. Matching tones

20. Playing singing games

21. Looking for familiar objects in cloud formations

22. Painting, photographing or drawing the same scene in different seasons, or weather conditions

23. Making and playing on primitive instruments

24. Listening to music recordings.

APPENDIX II

Suggested Bus and Travel Activities

Mathematics

A. Determine the number of telephone poles in a mile and the distance at which they are set relative to one another

B. Calculate the number of miles traveled on a gallon of gasoline

C. Estimate mileage by using a road map

D. Calculate the square inches of glass surface in the bus

E. Attempt to calculate the number of times that the bus wheels will make a complete revolution on a given trip. How does this effect tire ware?

Language Arts

A. Compose poetry describing your days experiences. (oral)

B. Count the nouns, adjectives, adverbs, verbs, etc. encountered on signs and road markers. (This could be in the form of a contest or game)

C. Give oral reports about previous experiences.

D. Play educational games such as scrabble, etc.

E. Conduct group debates on current issues. (The bus may be divided into sections for this)

Social Studies

A. Work with maps and identify various land marks along the way

B. Attempt to determine the major economic influences present in the areas traveled through

C. Determine the effect that the automobile has on the people residing in the rural areas observed

D. Attempt to ascertain the relationship of the soil to the economy of regions you travel through

E. Consider the hardships that pioneers endured on trips through early Idaho.

Science

A. Note indications of proper conservation practices on farms observed

B. Conduct a survey of wildlife seen from the bus window

C. Observe weather signs and relate them to the climate and local weather conditions

D. Determine the source of water for the areas you travel through, if any

E. Note evidence of mechanized farming and discuss its affect on food production

Recreational

A. Sing and discuss folk songs

B. Play various commercial, educational games

C. Work crossword puzzels

D. Read travel brochures about the area

E. Play word games of the student's choice

Pre planning

The days activities might be discussed and some pre planning accomplished while in transit.

Follow-up

The days experiences might be discussed and evaluated while returning to homebase.

APPENDIX III

Textbook References

Following is a list of textbooks in which are found many suggestions for the use of outdoor teaching to enrich and reinforce learning. In the alphabetized list, the first numeral indicates the book, the second numeral indicates the page number. This is not intended to be a comprehensive compilation. It may aid in relating the out-of-doors to classroom study - it may provide a starting place for the legitimate and intelligent use of outdoor materials in teaching. Many other good references are available.

I Exploring Science Six, Allyn and Bacon, 1960
II Science Problems I, Scott-Foresmen, 1957
III Discovering Our World 3, Scott-Foresmen, 1952
IV Working With Science, Ginn, 1950
V Science for the Junior High School, McKnight and McKnight, 1929
VI Teaching Science in the Elementary School, Rinehart and Co., 1956
VII Growth in Arithmetic 6, World Book Co., 1950
VIII Understanding Arithmetic 4, Laidlaw Bros., 1959
IX Understanding Arithmetic 5, Laidlaw Bros., 1959
X Understanding Arithmetic 6, Laidlaw Bros., 1959
XI Arithmetic Enrichment Program - Enlarging Mathematical Ideas, Ginn, 1961
XII Arithmetic in My World 5, Allyn and Bacon, 1958
XIII Language for Daily Use, World Book Co., 1959
XIV Our English Language, Grade 6, American Book Company, 1960

Acid and Rocks I-98, V-136
Acid & Soil I-100
Amphibians IV-331, VI-352
Angles XI-91
Animal Conservation IV-337, V-321
Areas & Perimeters XI-9
Atmosphere V-198, VI-174
Barometer V-204

Birds and Banding I-250, IV-79, 85, 87, VI-449
Board Feet VIII-150
Changing the Earth's Surface III-60, VI-400, XIII-190
Compass II-245, IV-243, XI-96
Crustacea VI-455
Description XIV
Dodder I-27
Dramatizing XIV
Fish I-56, IV-318, VI-452
Flint & Fire IV-18
Food Cycle II-350
Fossils III-277, VI-426
Fungus II-262, V-182
Geometry XI-95
Indian Pipe I-26
Insects V-145
Interdependency II-358
Limestone I-228
Leaf Prints II-169
Maps XI-64
Measuring Distance VIII-147
Mushrooms I-5, IV-280
Music I-164
Plants and Animals II-345, IV-69, VI-467, 475
Plants and Seeds II-56, IV-55, IV-285
Plants and Soils II-330, IV-313, VI-467
Poetry XIV
Ratios and Measurement XI-77
Reptiles VI-449
Scale Drawings and Areas VII-220, IX-166, X-191
Seasons I-30, IV-31, IV-185
Sky Study V-99
Social Animals II-352
Soils and Conservation I-322, III-87, XIII-200, 167
Spiders XI-458
Spore-bearing Plants V-167
Sun and Shadows I-30

Temperature Record VIII-37
Thermometers IX-157, X-45
Trees I-274, V-132
Units of Measure XI-25
Water I-228, V-81
Weather I-30, 192, 196, 198, 202, III-33, IV-100, V-207
Weather Stations IV-219
Worms & Mollusks II-48, VI-460, 462

SUGGESTED READINGS FROM PERIODICALS ON OUTDOOR EDUCATION

Bode, Boyd. "The Role of Camping in a Living Democracy," The Camping Magazine, 14:10-13, February, 1942

California Journal of Elementary Education, special issue on Camping and Outdoor Education, 26:65-129, November, 1957.

Carroll, John S. "Camping Education and the Extended Year," School Management, 18:12, April, 1949.

Carroll, John S. "Camping Education Can Vitalize the Entire School Program," The Nation's Schools, 45:28-31, June, 1950.

Clark, Leslie S., and George W. Donaldson. "Camping Is A Natural," The School Executive, 67:43-44, June 1948.

Cocking, Walter D. "How The Basic Issues in Camping and Outdoor Education Were Developed," The Bulletin of the National Association of Secondary School Principals, 31:107-108, May, 1947.

Committee on Camping in Education. "The Place of Camping in Education," The Journal of the American Association for Health, Physical Education and Recreation, 21:46-47, January, 1950.

Conrad, Lawrence H. "The Teacher Out-of-Doors," The Bulletin of the National Association of Secondary School Principals, 31:36-41, May, 1947.

Cooper, Hermann. "Teacher Education for the Out-of-Doors," The Bulletin of the National Association of Secondary School Principals, 31:53-59, May 1947.

Curtis, Henry S. "The School Camp," Journal of the National Education Association, 24:113-116, April, 1935.

DeWitt, R. W. "Camping Education — A Philosophy," The National Elementary School Principal, 28:3-5, February, 1949.

Donaldson, George W. "A Camp Director Looks At His Program," The Journal of Educational Sociology, 23: 529-532, May, 1950.

Donaldson, George W. "Educational Leadership in School Camping," Camping Magazine, 23:20-21, May 1951.

Donaldson, George W. "Living and Learning Outdoors," The School Executive, 64:65-66, February, 1945.

Donaldson, George W. and Leslie S. Clark. "Two Weeks of School in the Woods, The National Elementary School Principal, 28:11-15, February, 1949.

Donaldson, George W. and Hope A. Lambert. "School Camp — Outdoor Laboratory for Enriched Learning Experiences," Camping Magazine, 28:17-21, May 1956.

Eliot, Charles W. "The Role of Camping in Social Life in a Changing World," The Camping Magazine, 14:20-21, February, 1942.

Elliot, Eugene B., And Julian W. Smith. "The Michigan Program in Action," The Bulletin of the Association of Secondary School Principals, 31:60-74, May, 1947.

Finnie, Jean, "Education Out-of-Doors," Peabody Journal of Education, 31:324-326, May, 1954.

Fowler, H. Seymour, "The Iowa Teachers' Conservation Camp: Its Philosophy and Curriculum," School Science and Mathematics, 55:350-354, May, 1955.

Fuller, Alma D. "School Forest -- Conservation Laboratory," National Education Association Journal, 40:630-632, December, 1951.

Gibson, H. W. "The History of Organized Camping," The Camping Magazine, 8:13-15, January, 1956.

Gibson, H. W. "The History of Organized Camping," The Camping Magazine, 8:18-27, March, 1936.

Gibson, H. W. "The History of Organized Camping," The Camping Magazine, 8:18-27, April, 1936.

Giese, H. C. "Australia Adopts School Camping," Journal of the American Association for Health, Physical Education and Recreation, 23:16, November, 1952.

Gores, Harold B. "School Room Without Walls," The Nation's Schools, 55:58-61, April, 1955.

Green, Charoltte H. "Greensboro's Camp School," Nature Magazine, 49:371-374, August, 1956.

Hammerman, Donald R. "A Shot in the Arm For Teacher Education," The Journal of Health -- Physical Education -- Recreation, 29:21, November, 1958.

Hammerman, Donald R. "Clear Lake Camp -- A School In The Woods," The Teacher's College Journal, 24:40-41, December, 1952.

Hammerman, Donald R. "Just What Is School Camping?" Camping Magazine, 30:28-30, February, 1958.

Hammerman, Donald R. "The Clear Lake Story," The Teacher's College Journal, 25:5, October, 1953.

Hammerman, Donald R. "Teacher Education Moves Outdoors," Illinois Education Journal, 45:350-351, May 1957.

Hammerman, Donald R. "They Learn Away From School," The Maryland Teacher, 8:12-13, April, 1956.

Harman, Dorothy C., et al. "What is Outdoor Education?" California Journal of Elementary Education, 26:71-78, November, 1957.

Hoffman, Betty, "School Camping Means Real-Life Learning," The National Education Association Journal, 38:360-361, May, 1949.

Jaffe, Dorothea K. "Preparing Teachers To Teach Outdoors," The Nation's Schools, 55:47-50, June, 1955.

Kilpatrick, William H. "The Role of Camping in Education Today," The Camping Magazine, 14:14-17, February, 1942.

Mackintosh, Helen K. "Why Camping and Outdoor Education Experiences in the School Program?" Education Digest, 13:30-31, December, 1947.

Masters, Hugh B. "A Community School Camp," The Elementary School Journal, 41:736-747, June, 1941.

McClusky, Howard Y. "The Out-of-Doors As Part of the Total Educational Program," The School Executive, 64:63-65, February, 1945.

Mitchell, Elmer D. "The Summer Camp Re-enforces Education," The Clearing House, 10:473, April, 1936.

Nash, Jay B. "Why A School Camping Program," The Journal of Educational Sociology, 23:500-507, May, 1950.

Ogburn, William F. "Our Times," The American Journal of Sociology, 47:803-815, May, 1942.

Otto, C. Lucille. "Our Winter Outdoor School," Journal of Health--Physical Education--Recreation, 28:8-9, December, 1957.

Partridge, E. DeAlton, "Camping: Next Step in American Education," Progressive Education, 25:230-231, October, 1947.

Partridge, E. DeAlton, "Some Psychological Backgrounds of Camping," Camping Magazine, 15:6-8, March, 1942.

Pike, Kenneth V. "School Camping Has Come To Stay," Journal of the American Association for Health, Physical Education and Recreation, 22:23-24, June, 1951.

Pike, Kenneth V. "The Long Beach Public School Camp," The National Elementary School Principal, 28:24-28, February, 1949.

Pittenger, A. O. "School Camps: A Needed Post-War Development," Curriculum Journal, 14:215-218, May, 1943.

Pumala, Edwin E. "San Diego Organizes A School Camp," California Journal of Elementary Education, 18:31-35, August, 1949.

Pumala, Edwin E. "Secondary School Camping," California Journal of Secondary Education, 25:281-284, May, 1950.

Pumala, Edwin E. "The San Diego, California Community School Camp," The Bulletin of the National Association of Secondary School Principals, 31:100-105, May, 1947.

Raab, George E., and J. Kenneth Shotts. "Close-up of School Camping," Journal of The American Association for Health, Physical Education and Recreation, 23:22-23, May, 1952.

Redl, Fritz. "The Role of Camping in Education," The Camping Magazine, 14:41-44, February, 1942.

Sask, Marion J. "School Camping -- A Potent Factor in Guidance," Education, 73:501-503, April, 1953.

Seman, Phillip L. "Public School Camping: California's Pilot Project in Outdoor Education," School Activities, 23:225-227, March, 1952.

Sharman, Jackson R. "Camping A School Responsibility," The Phi Delta Kappan, 21:116-118, December, 1938.

Sharp, Lloyd B. "Recent Trends in School Camping," Camping Magazine, 22:6, January, 1950.

Sharp, Lloyd B. "Schools Go Out-of-Doors," The School Executive, 63:24-26, January, 1944.

Sharp, Lloyd B. "Why Outdoor and Camping Education?" The Journal of Educational Sociology, 21:313-318, January, 1948.

Sharp, Lloyd B. and Ernest G. Osborne, "Schools and Camping," Progressive Education, 17:236-238, April, 1940.

Sharp, Lloyd B., and E. DeAlton Partridge. "Some Historical Backgrounds of Camping," The Bulletin of the National Association of Secondary School Principals, 31:15-18, May, 1947.

Smith, Donnal V. "School Camp Education, An Integral Program," Camping Magazine, 18:6-7, June, 1946.

Smith, Julian W. "Camping and Outdoor Education," The School Executive, 68:60-61, April, 1949.

Smith, Julian W. "First National Conference on Outdoor Education," Journal of Health--Physical Education--Recreation, 29:9-10, October 1958.

Smith, Julian W. "The Michigan Story of Camping and Outdoor Education," The Journal of Educational Sociology, 23:508-515, May, 1950.

Smith, Julian W. "The Outdoor Education Project's First Year," Journal of Health--Physical Education--Recreation, 27:14-15, October, 1956.

Smith, Julian W. "Outdoor Schools," The National Elementary School Principal, 31:30-35, April, 1952.

Smith, Julian W. "The Scope of Outdoor Education," The Bulletin of the National Association of Secondary School Principals, 44:156-158, May 1960.

Smith, Julian W. "Status of School Camping," Camping Magazine, 24:28, June, 1952.

Smith, Julian W. "Three Years of Progress: Report of the American Association for Health, Physical Education and Recreation Outdoor Education Project," Journal of Health--Physical Education--Recreation, 30:17-18, January, 1959.

Solomon, Ben. "Some International Aspects of School Camping," Education, 73:17-21, September, 1952.

Squires, John L. "Standards in Public School Camping," Journal of the American Association for Health, Physical Education and Recreation, 25:24, September, 1954.

SUGGESTED FILMS ON CUTDOOR EDUCATION

Adventuring in Conservation, Indiana University. 5N003

Beyond the Chalkboard, U.S.D.A., Forest Service, 324 25th Street, Ogden, Utah

Camping Education, 35m. S.C. Ill. State Museum, Springfield, Illinois

Classroom in the Cascades, 30 m. S.C. University of Washington, Seattle.

Education Moves Outdoors, NIU. 5E502

"I Went to the Woods" Antioch College Audio Visual Aids
Yellow Spings, Ohio
Atten: Ed Clarke, Director

Islands of Green, U.S.D.A., Forest Service, 324 25th Street, Ogden, Utah

Lands for Learning, U.S.D.A., Forest Service, 324 25th Street, Ogden, Utah

Nature Next Door, U.S.D.A., FOREST SERVICE, 324 25th Street, Ogden, Utah

Near Home, British Information Service. Radio City, N.Y.

Outdoor Education in Cook County, Cook County Film, Forest Preserve District,
536 N. Harlem Ave., River Forest, Illinois

Patterns of the Wild, U.S.D.A., Forest Service, 324 25th Street, Ogden, Utah

Schooltime in Camp, 20 m. S.C. NIU:A.V. 5E101

Teacher Education in the Out-of-Doors, NIU. 5E107

The Big Adventure, 14 m. S. B&W. Conservation Education Section,
Department of Natural Resources, State Office Building No. 1,
Sacramento, California.

Wisdom Grows Outdoors, 22 N. S. B&W. Michigan Department of Conservation.
Film Loan Service, Lansing 13, Michigan